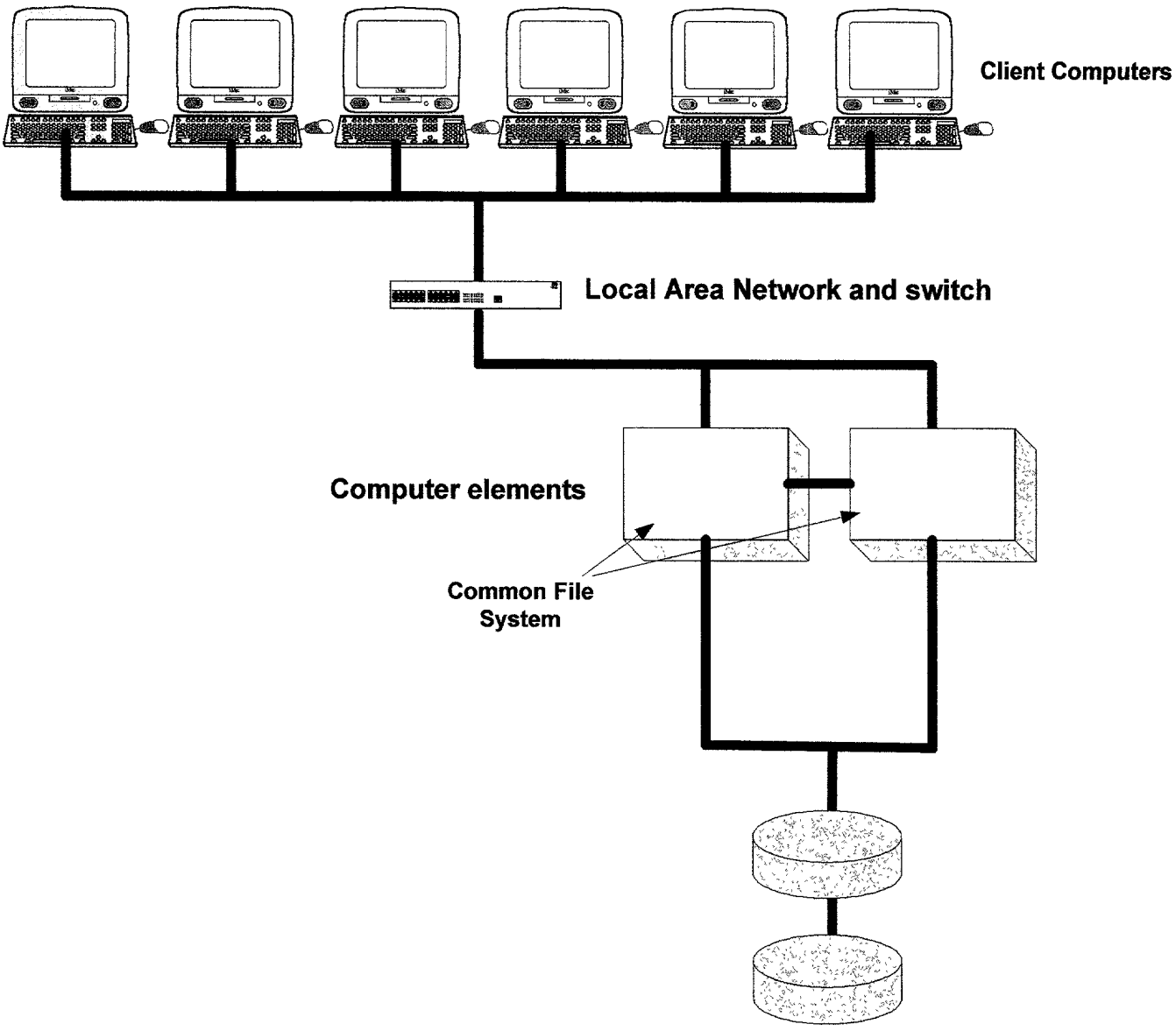


Figure 1: Current Architecture Network-Attached Storage system With Tightly-coupled Computer Elements

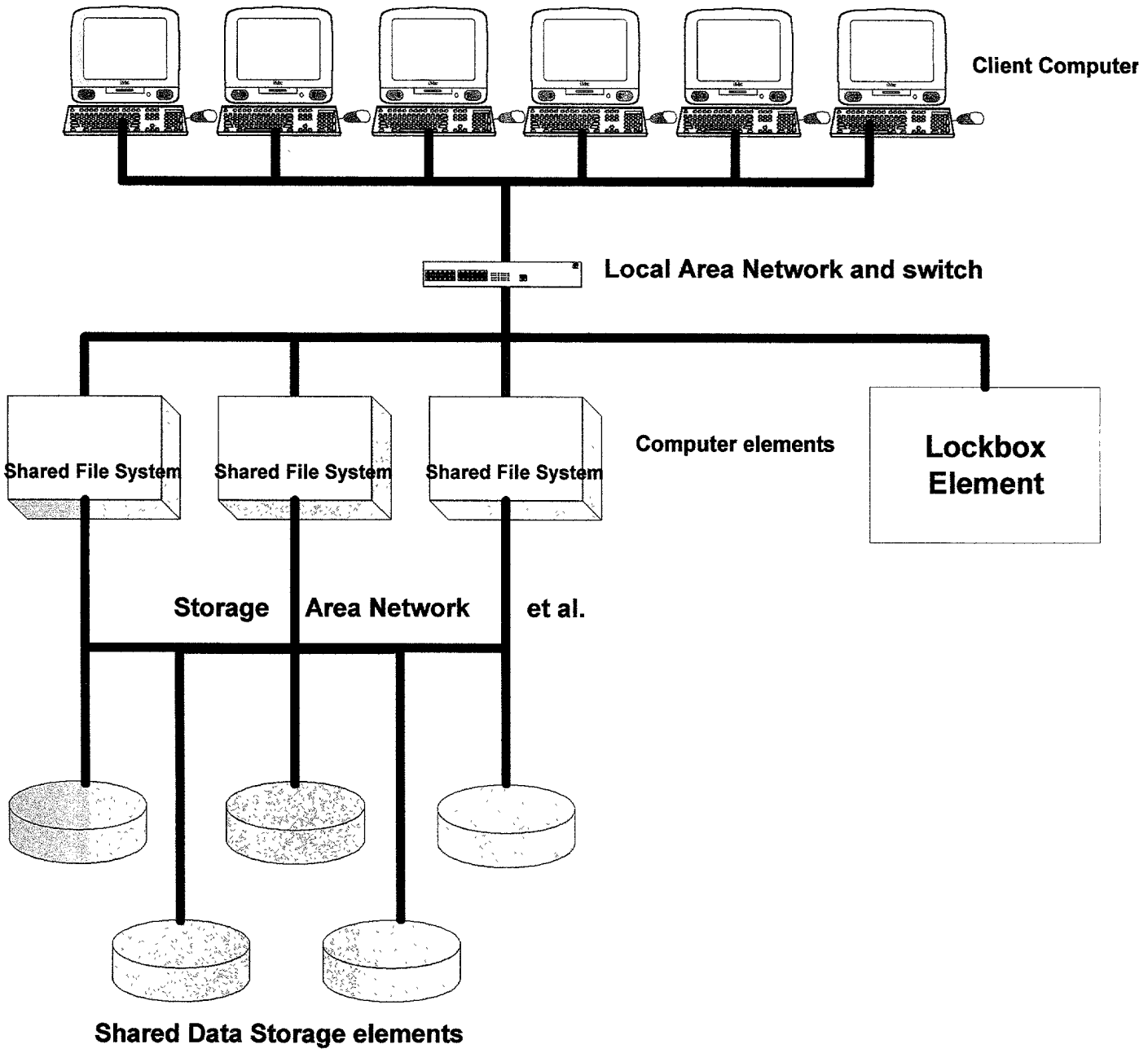


Figure 2: Current Architecture Network-Attached Storage system With Loosely-coupled Computer Elements

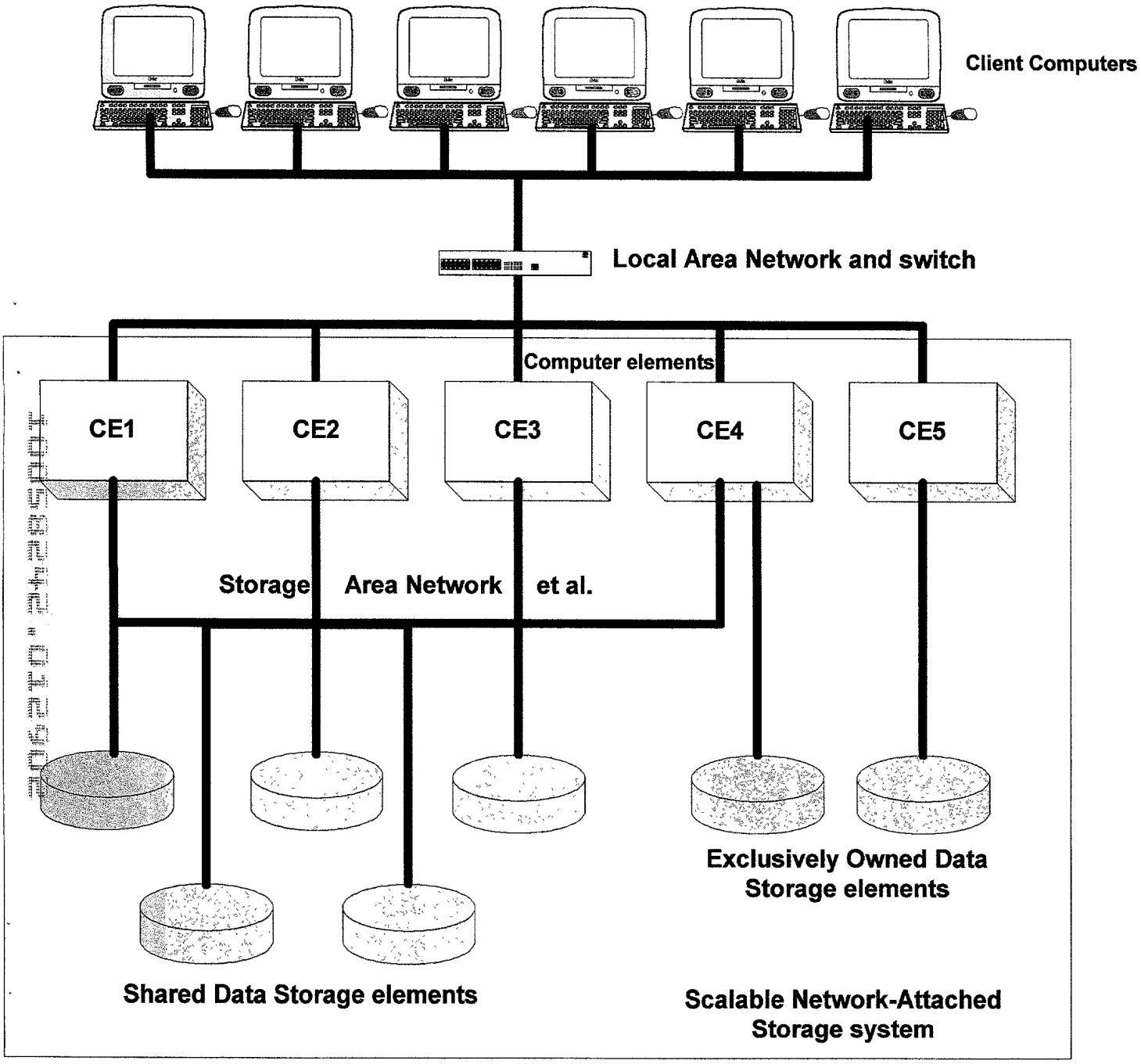


Figure 3: Scalable Network-Attached Storage System Hardware Elements

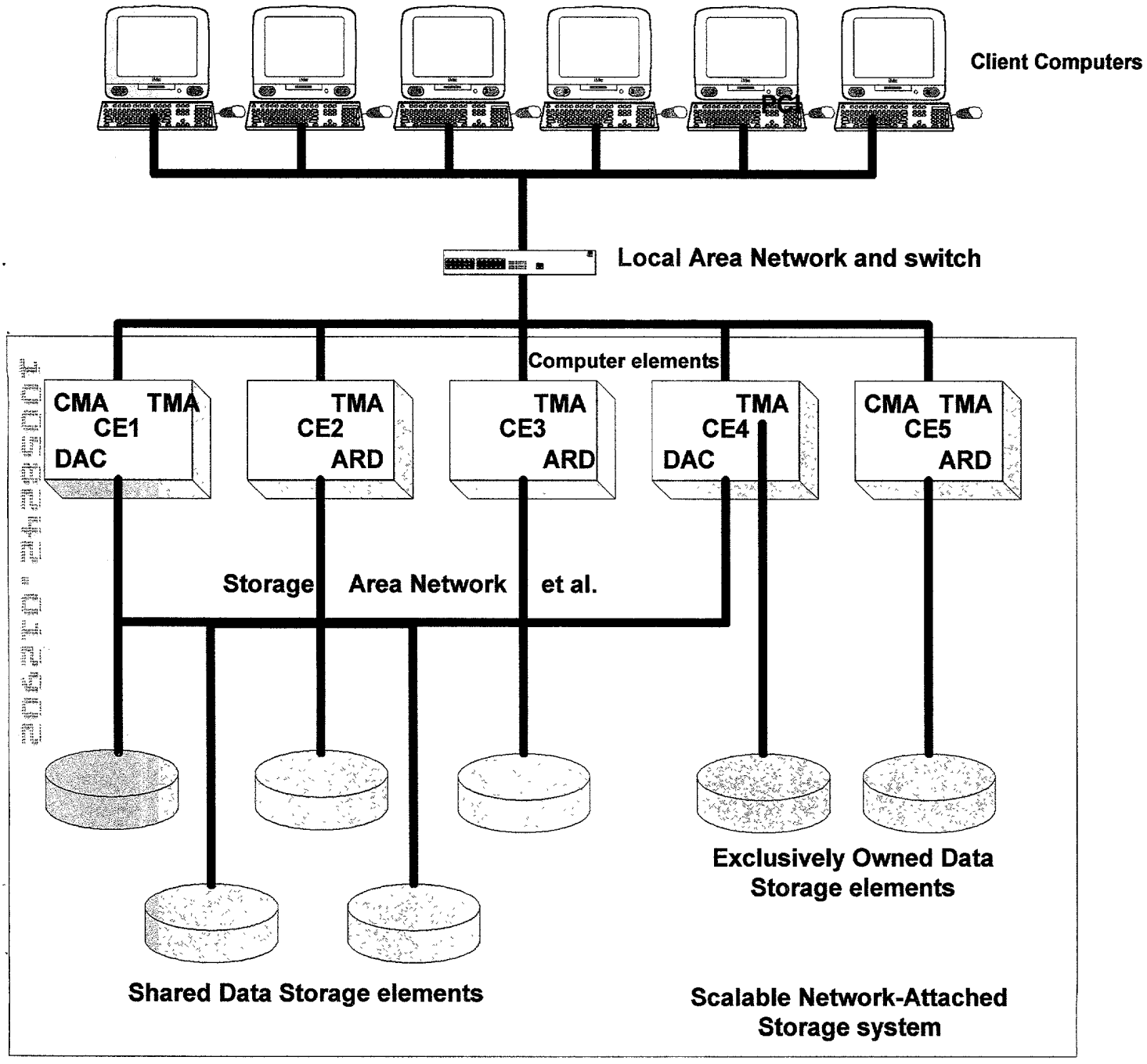


Figure 4: Scalable Network-Attached Storage System Software Elements Shown on Hardware Elements

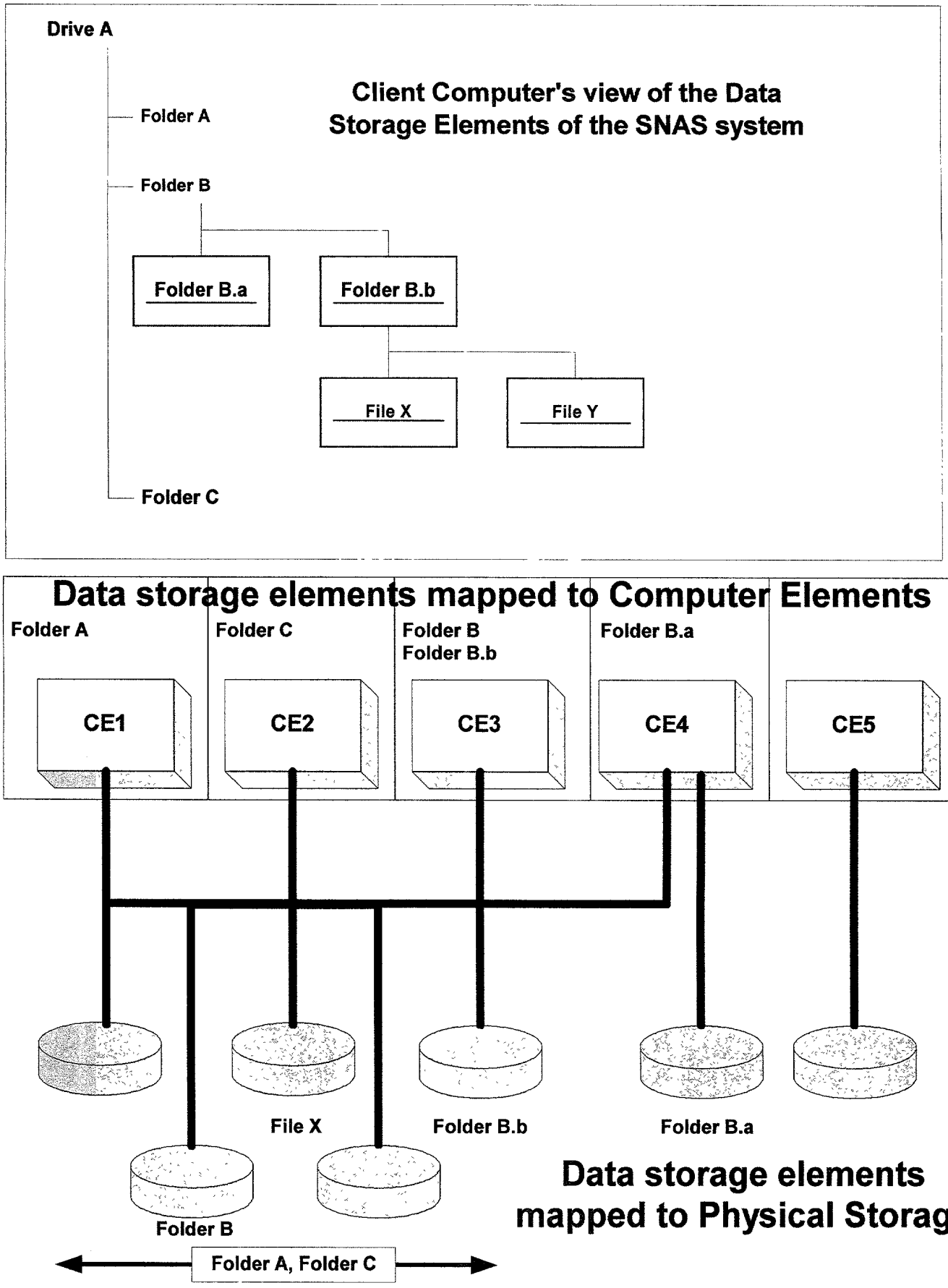
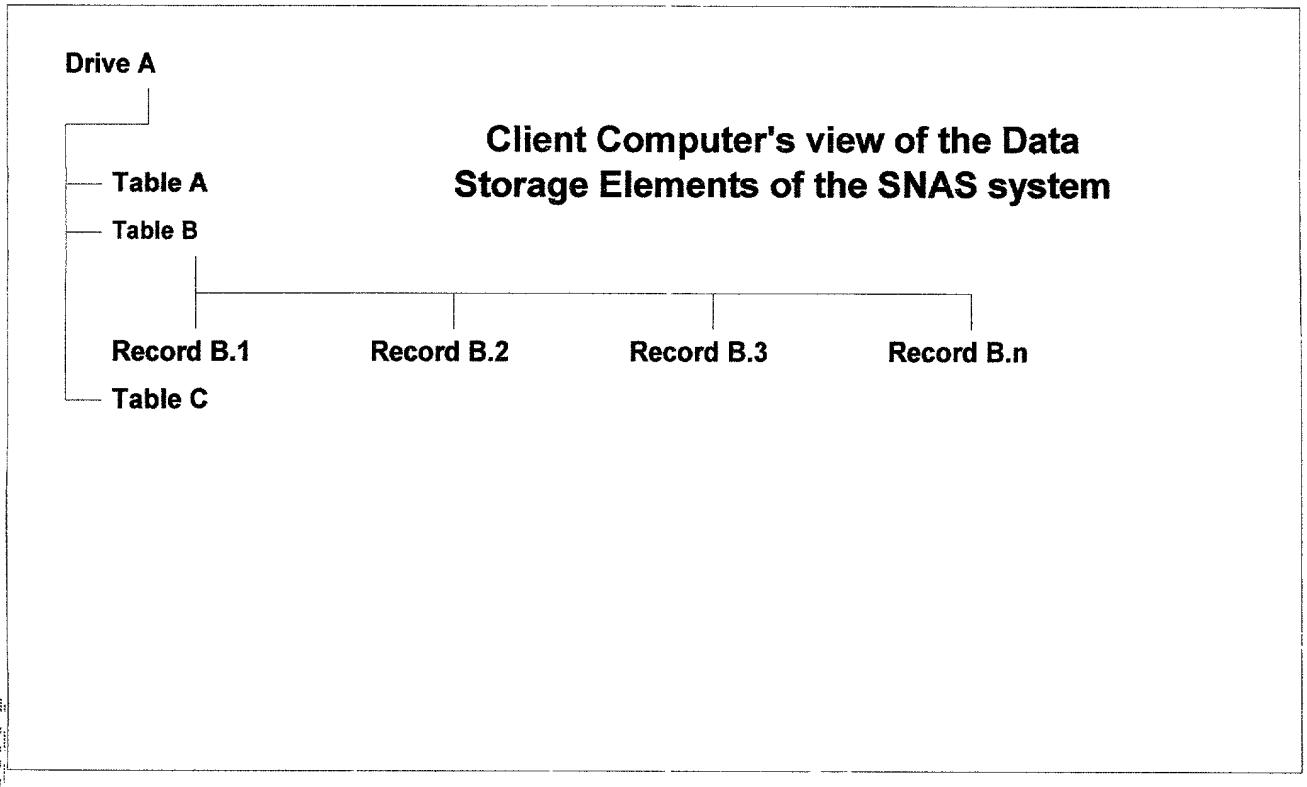


Figure 5: Mapping of Data Storage Elements



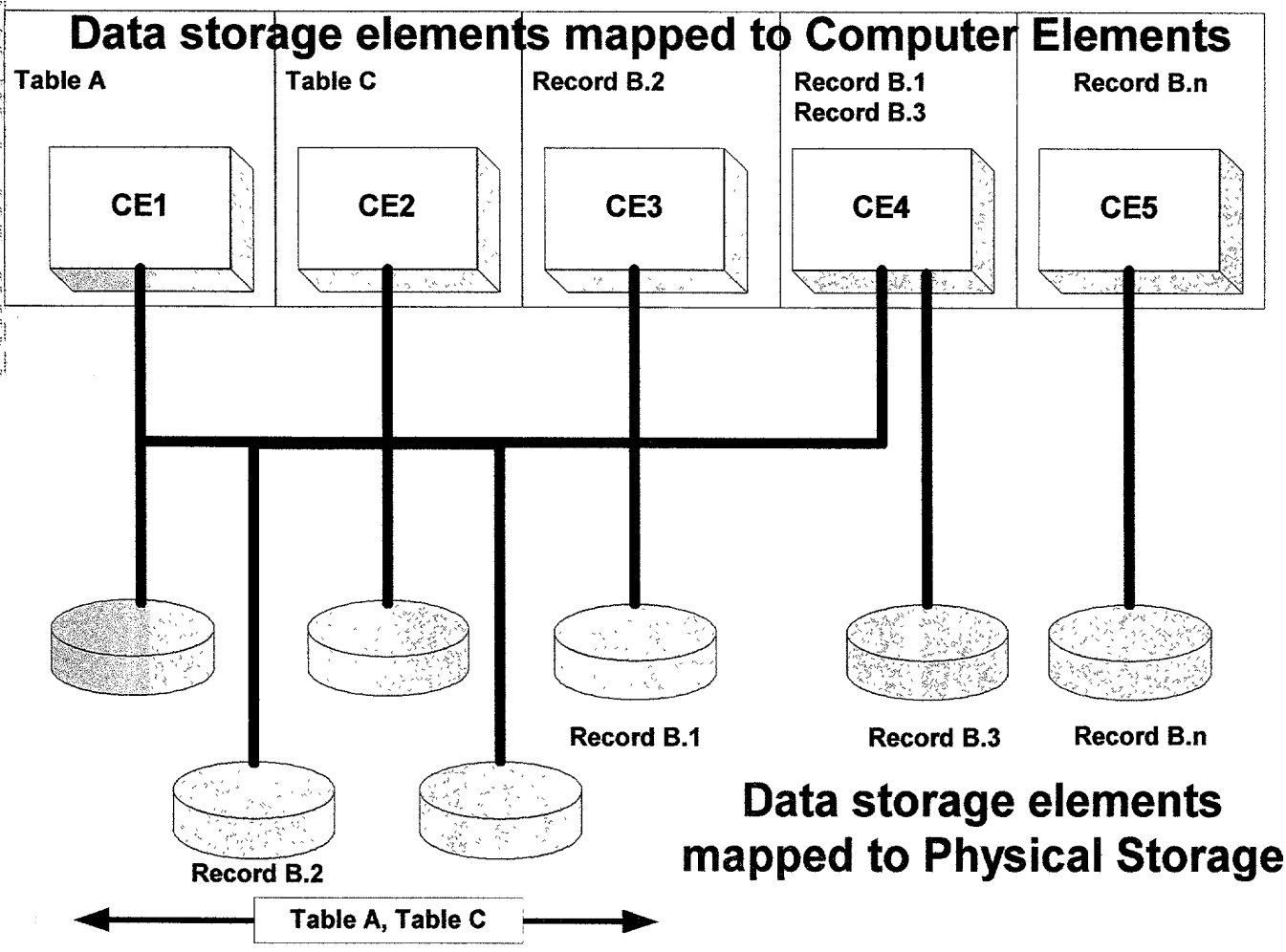


Figure 6: Mapping of Data Storage Elements in a Database-type System

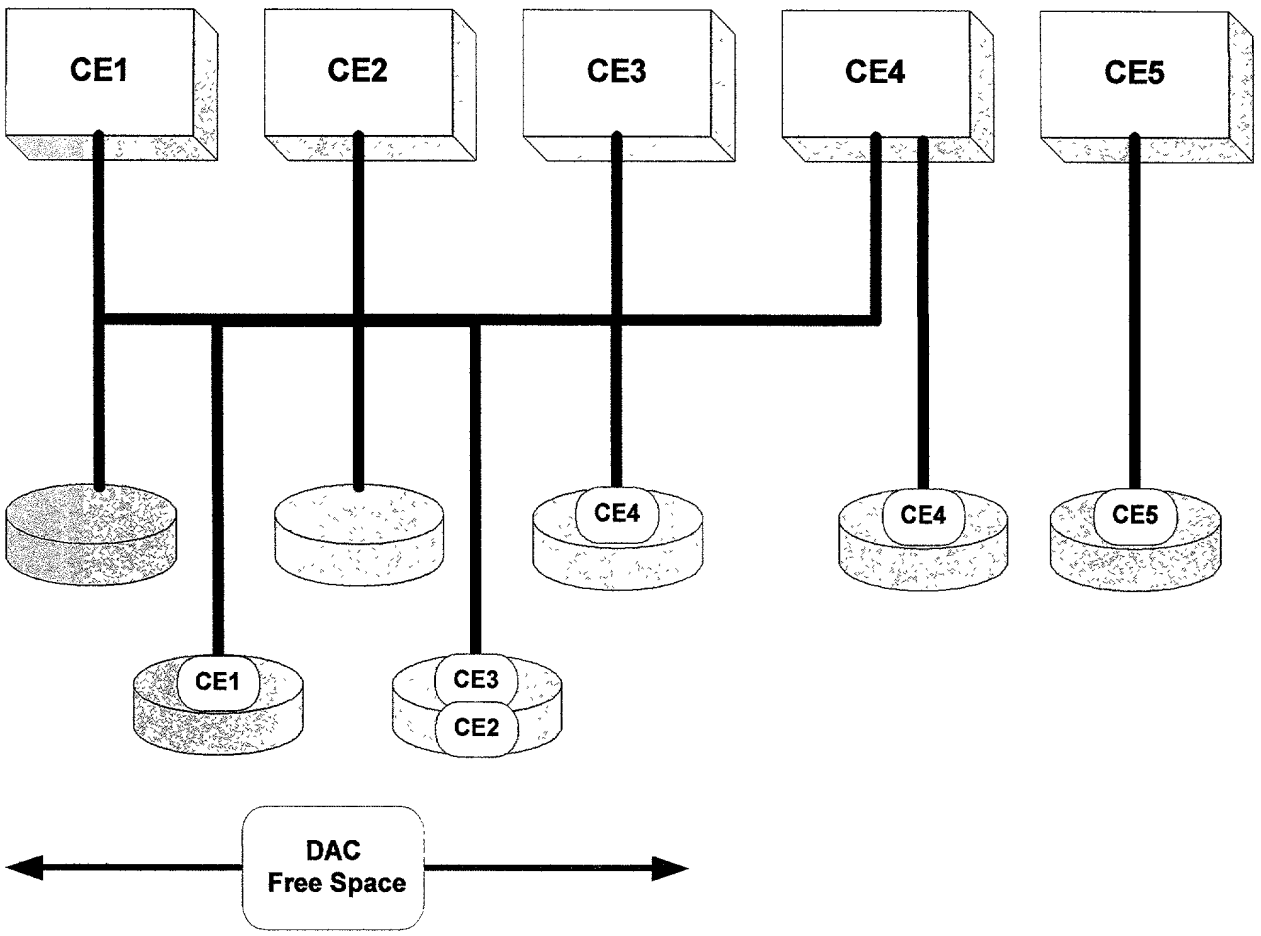


Figure 7: Two-Tier Mapping of Free Space onto Data Storage Elements

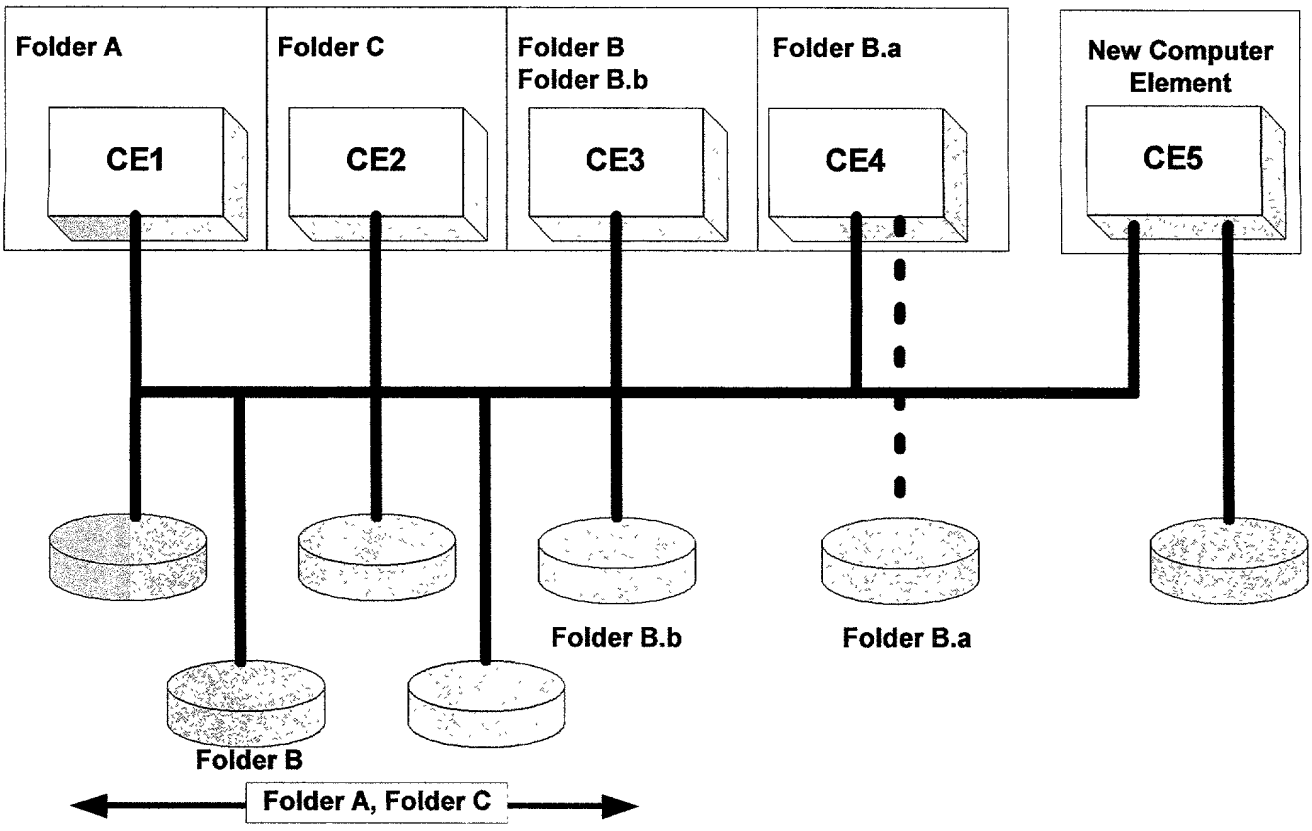


Fig 8a:Map just as New Computer Element is added

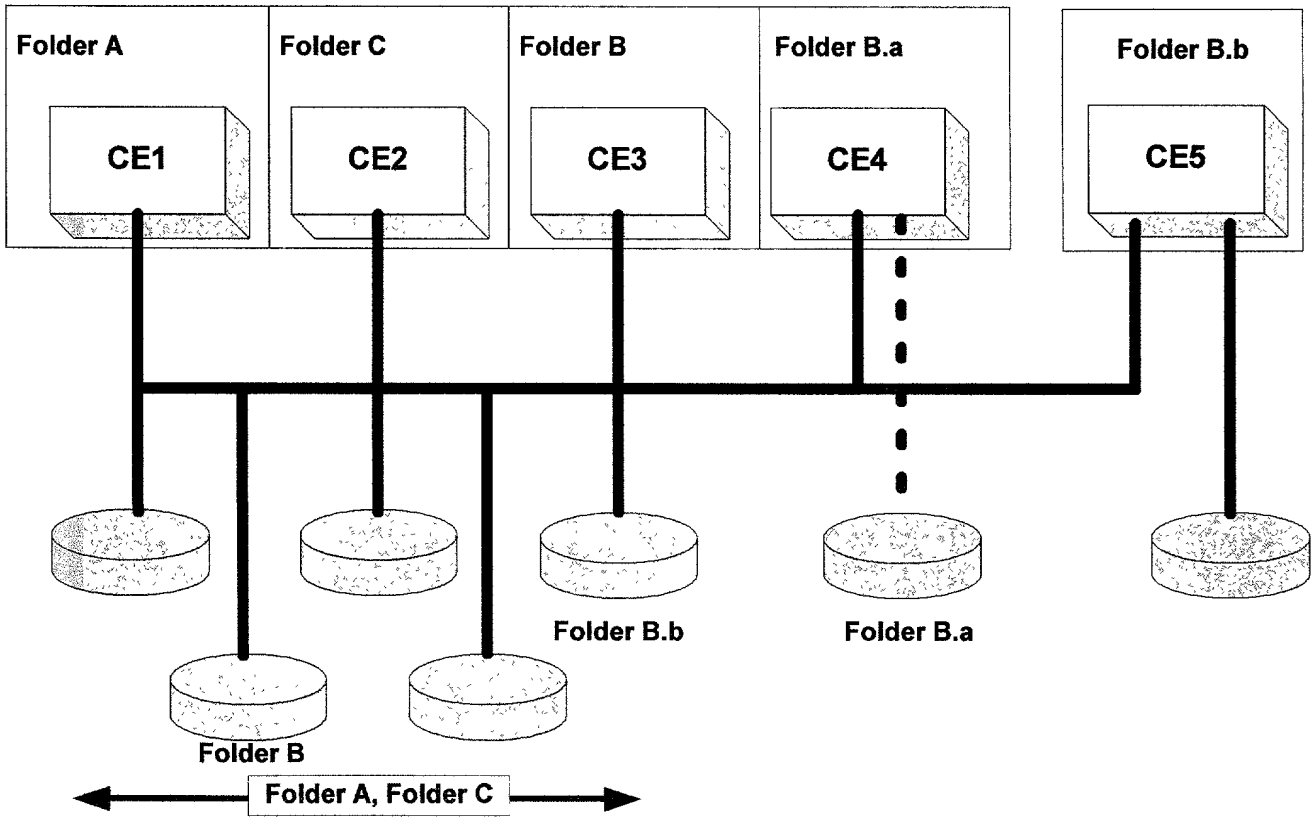


Fig 8b:Map After DAC has Re-allocated

Figure 8: Scaling of Computer Elements

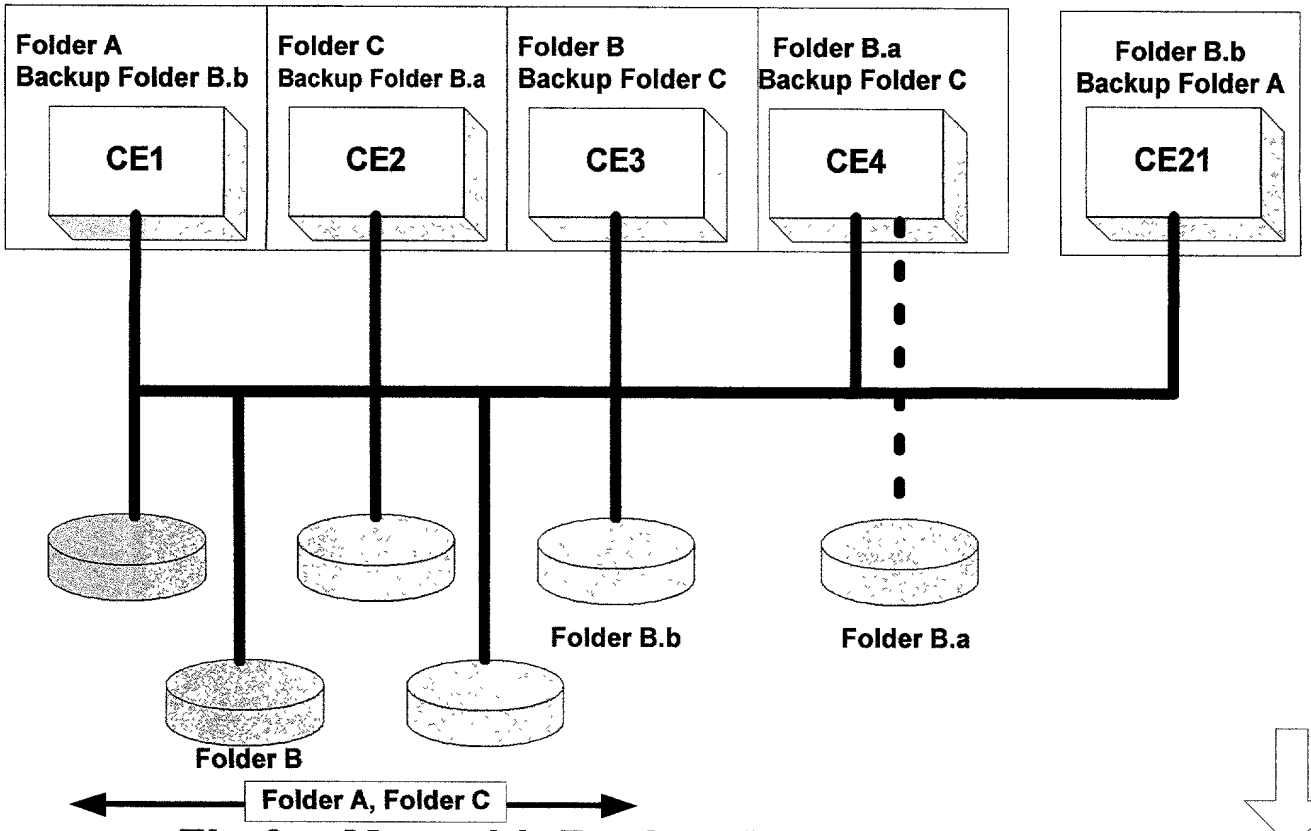


Fig 9a: Map with Backup Map Prior to Failure

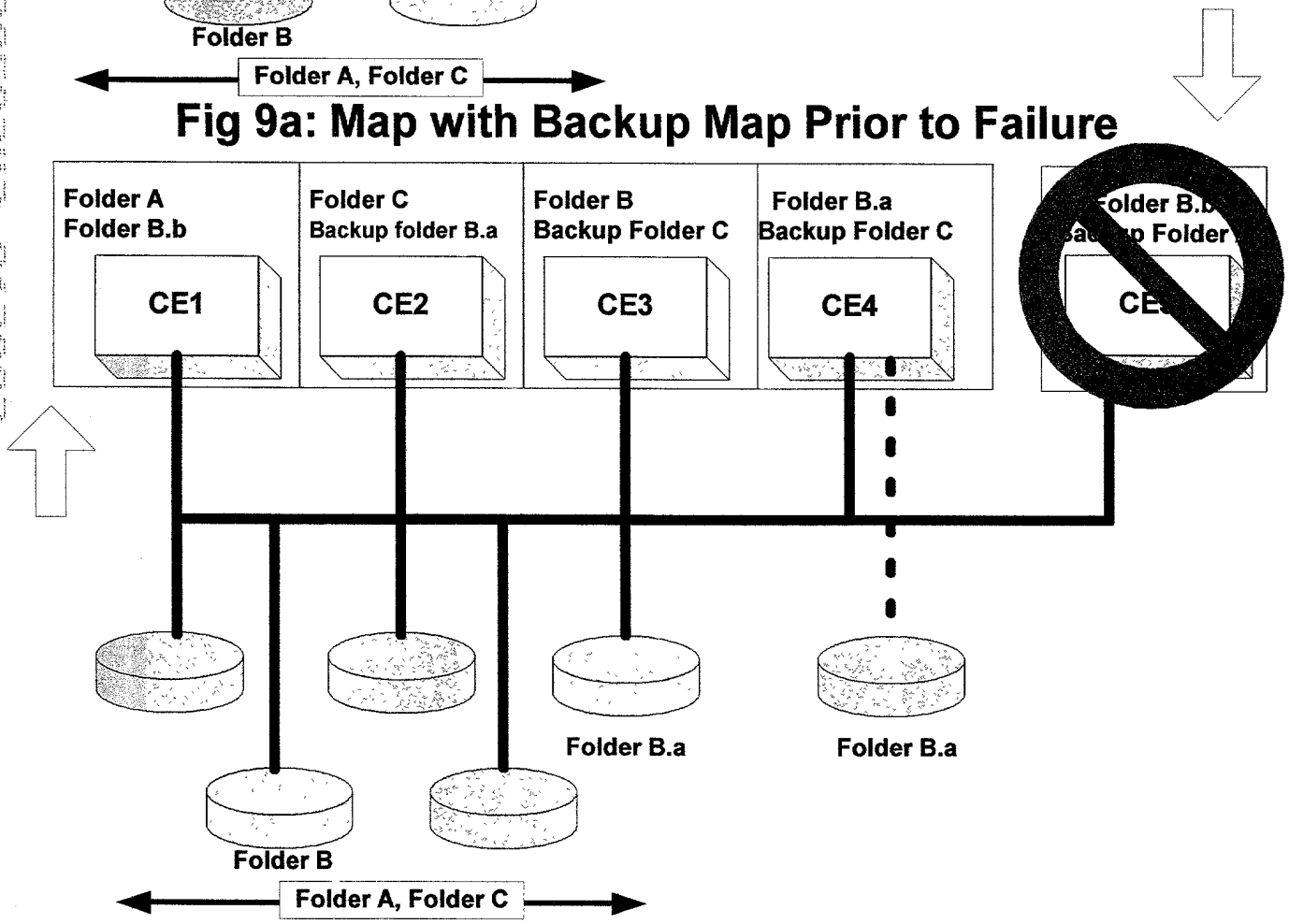


Fig 9b: Map Re-allocated After Failure

Figure 9: Backup Map Concept

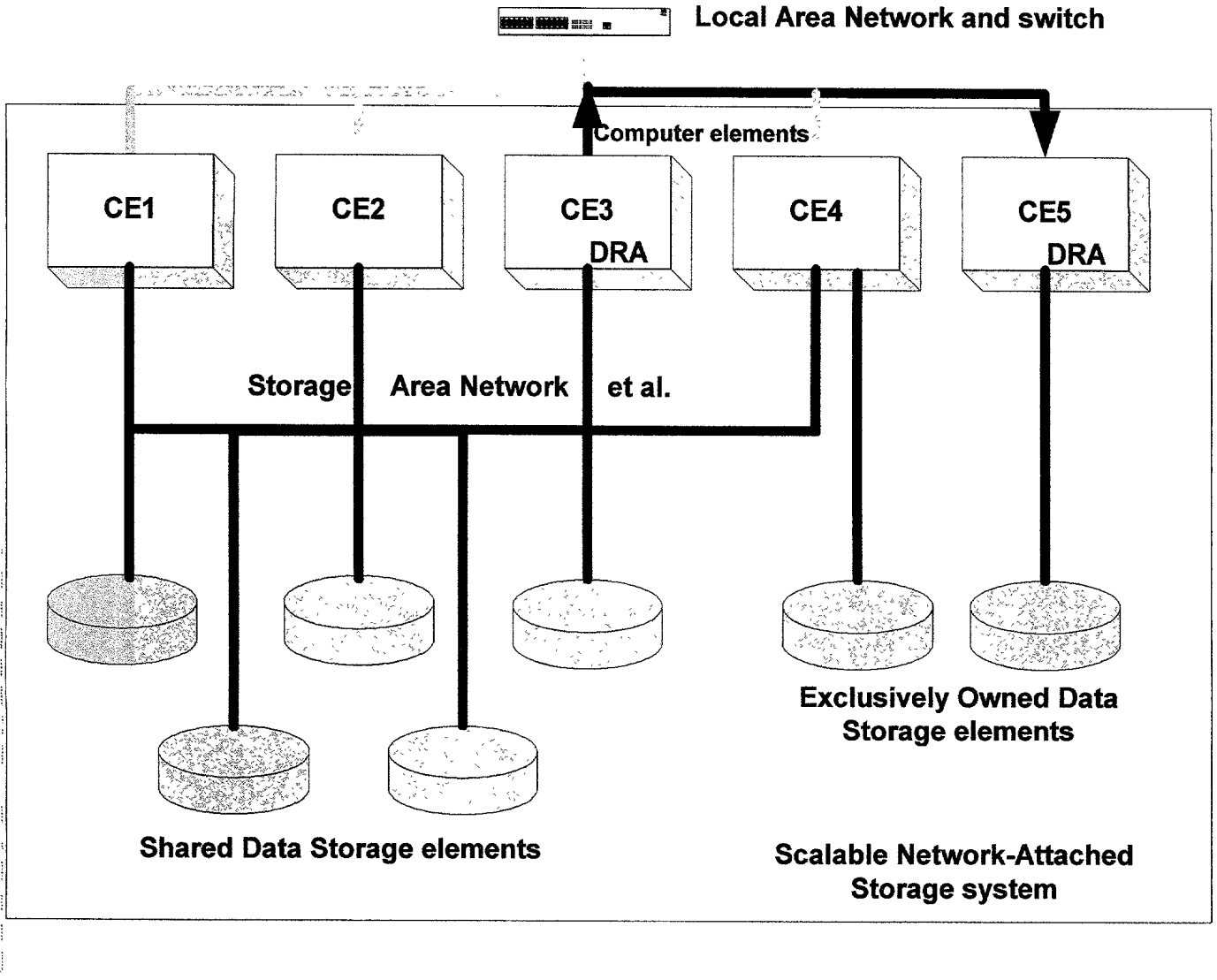


Figure 10: Local Replication

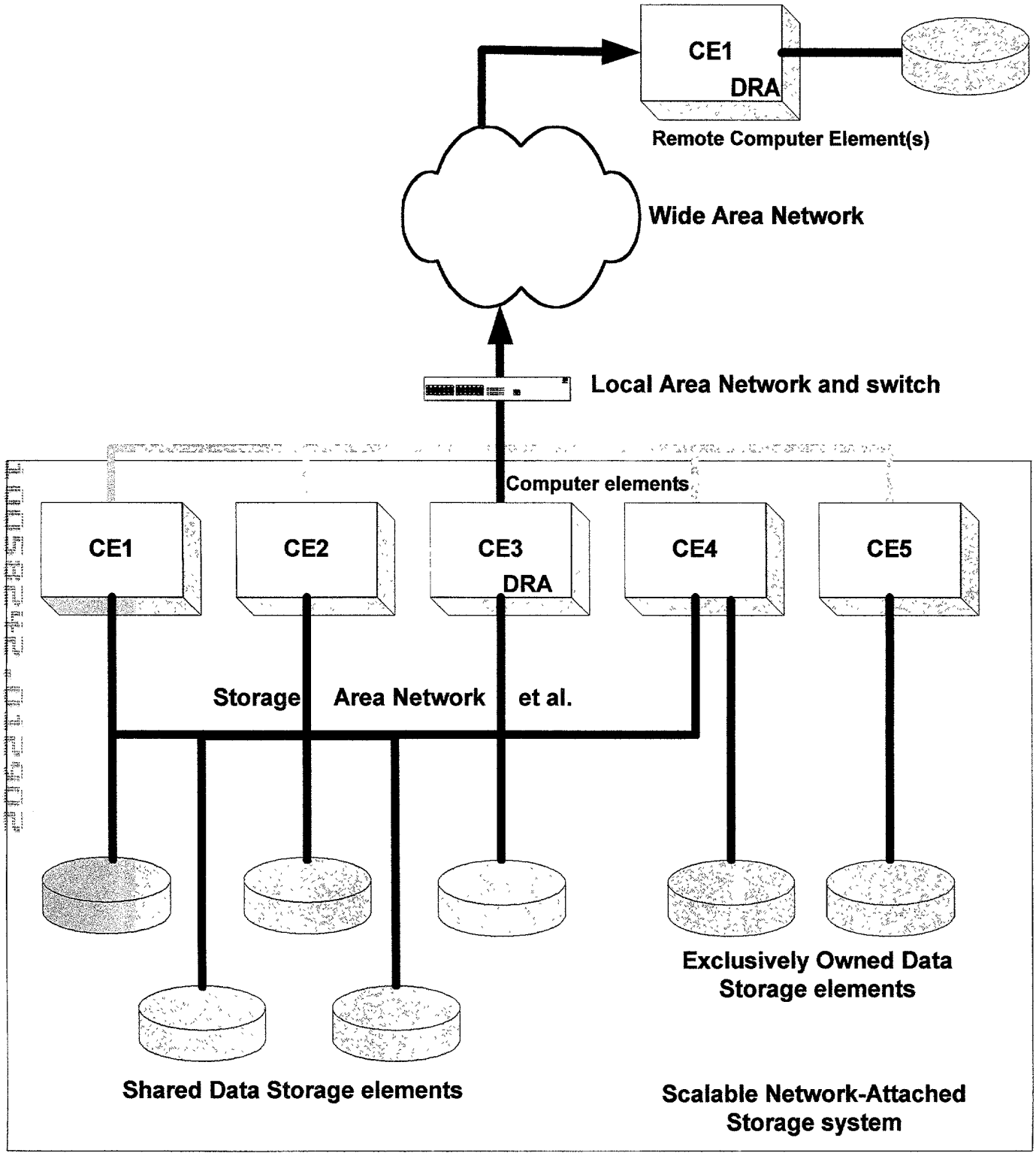


Figure 11: Remote Replication

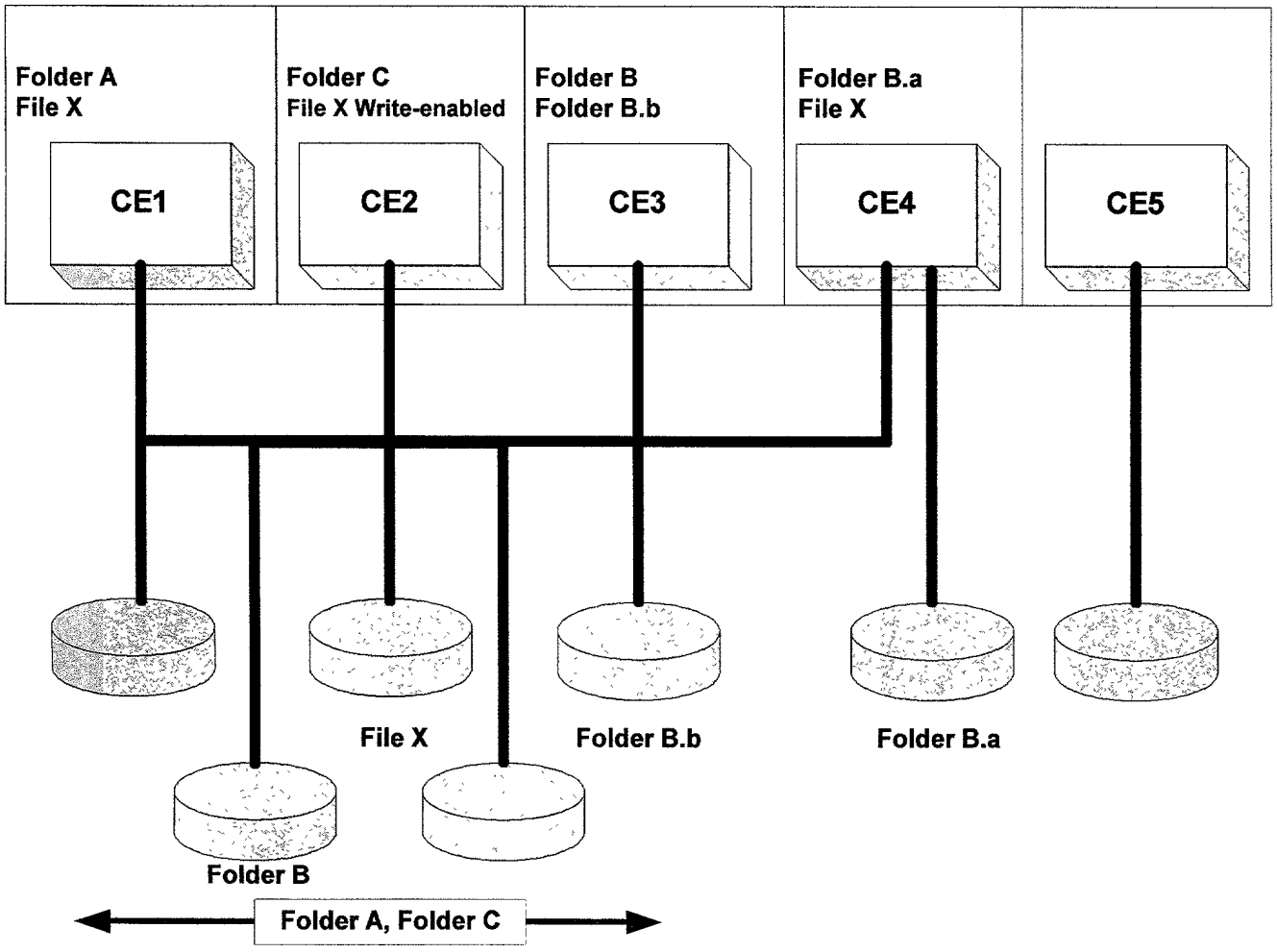


Figure 12: Access Replication

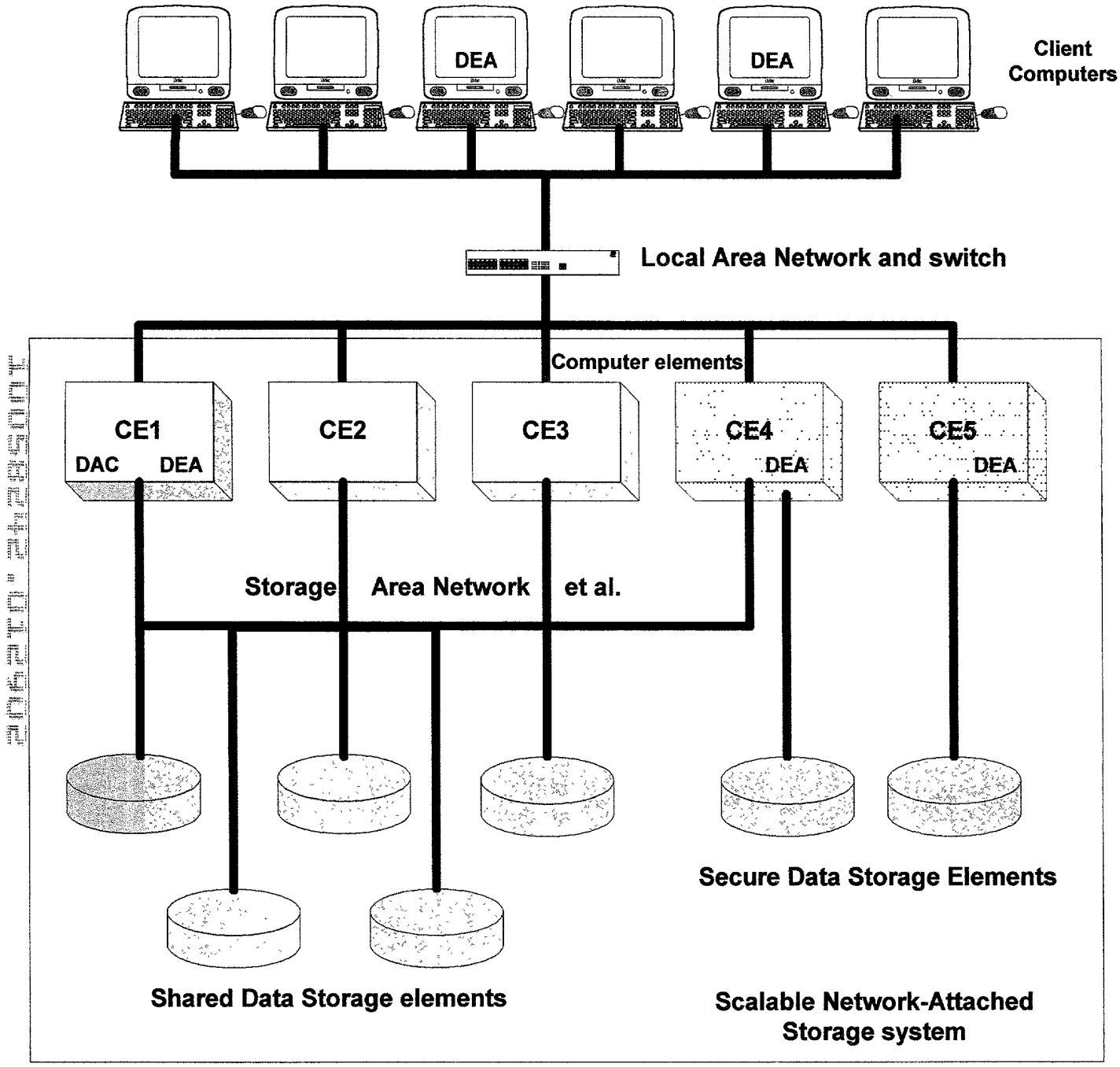


Figure 13: Secure-SNAS System

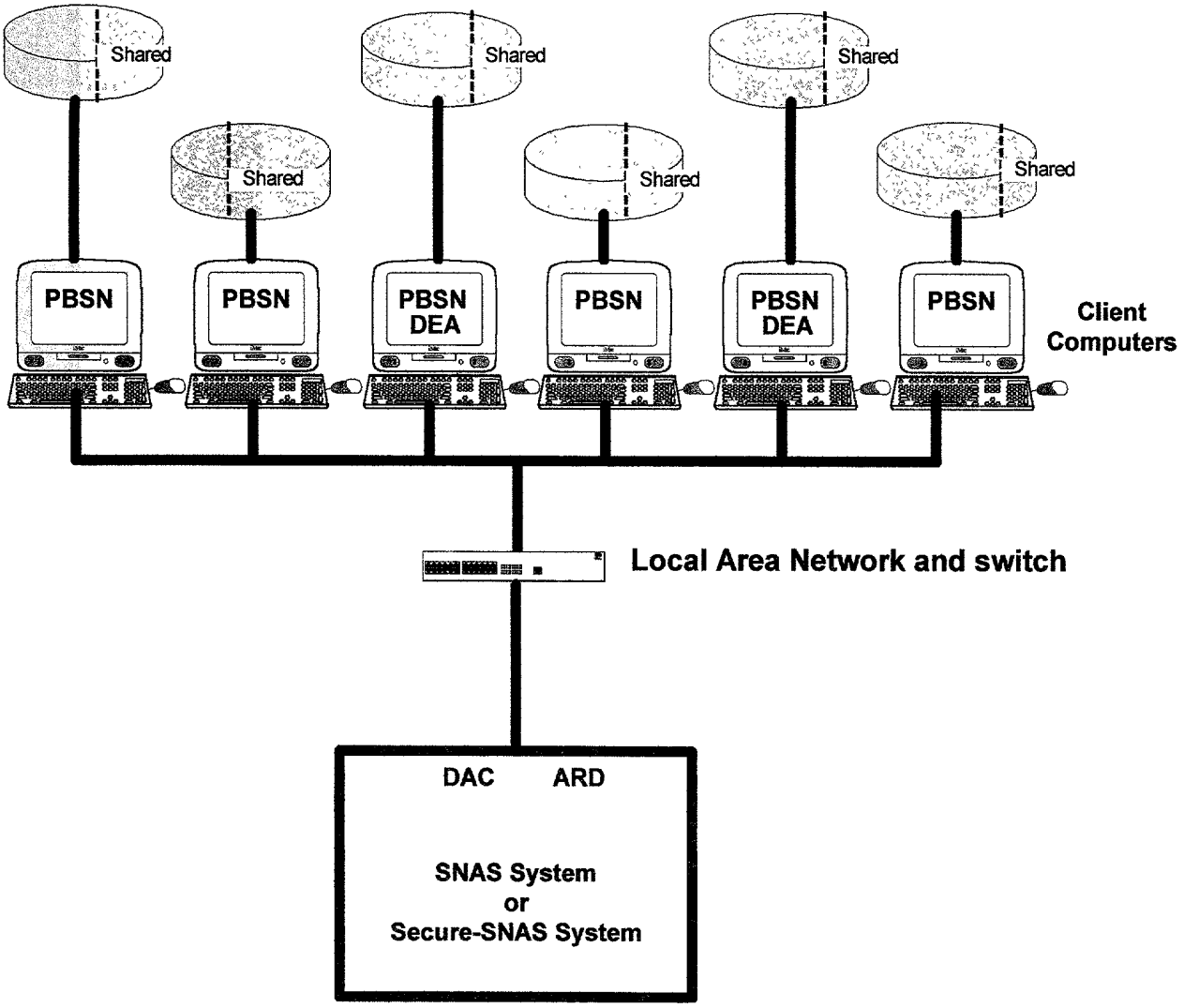


Figure 14: Peer-Based Storage Network

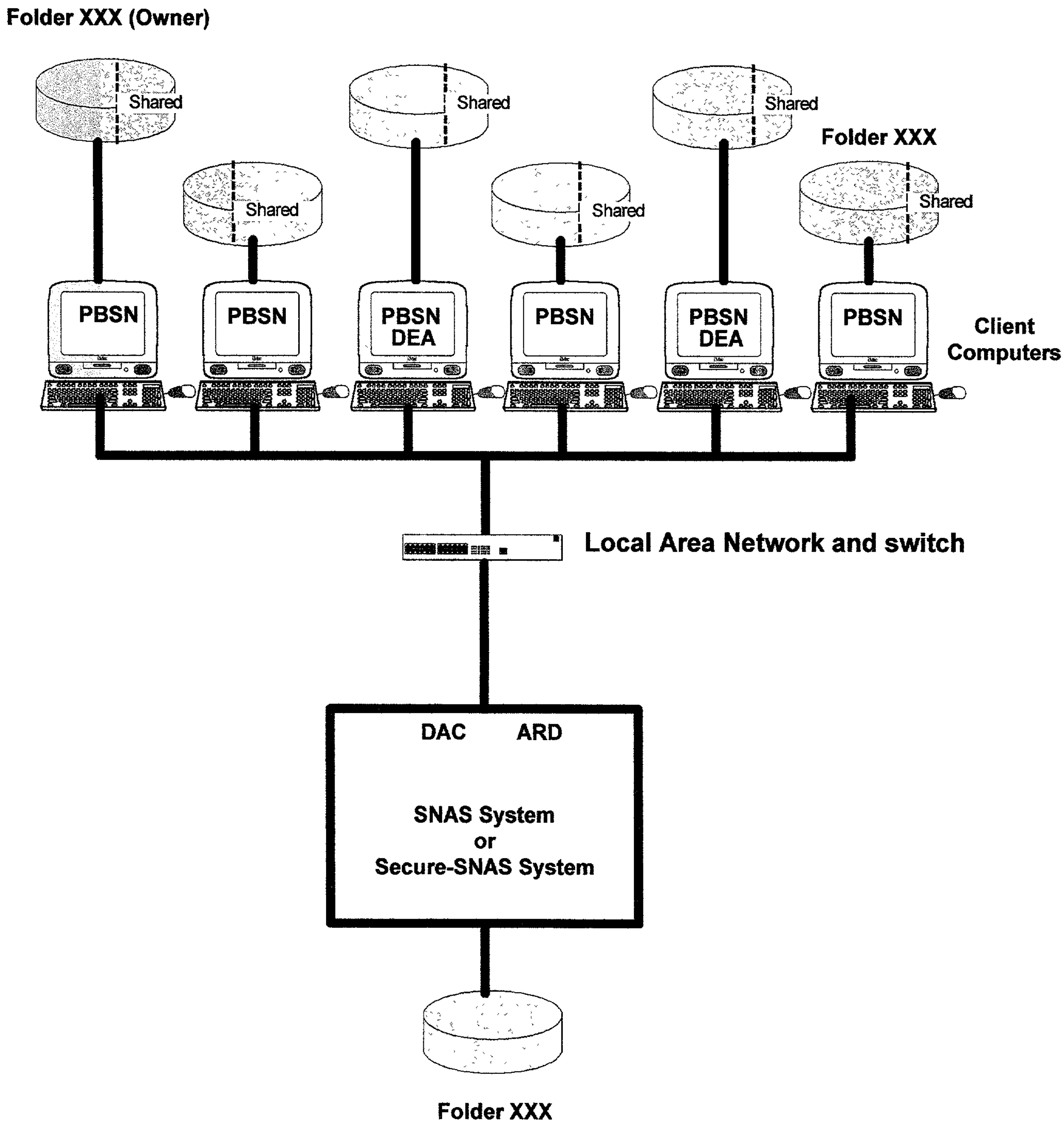


Figure 15: High Availability User Network Based on Peer-Based Storage Network

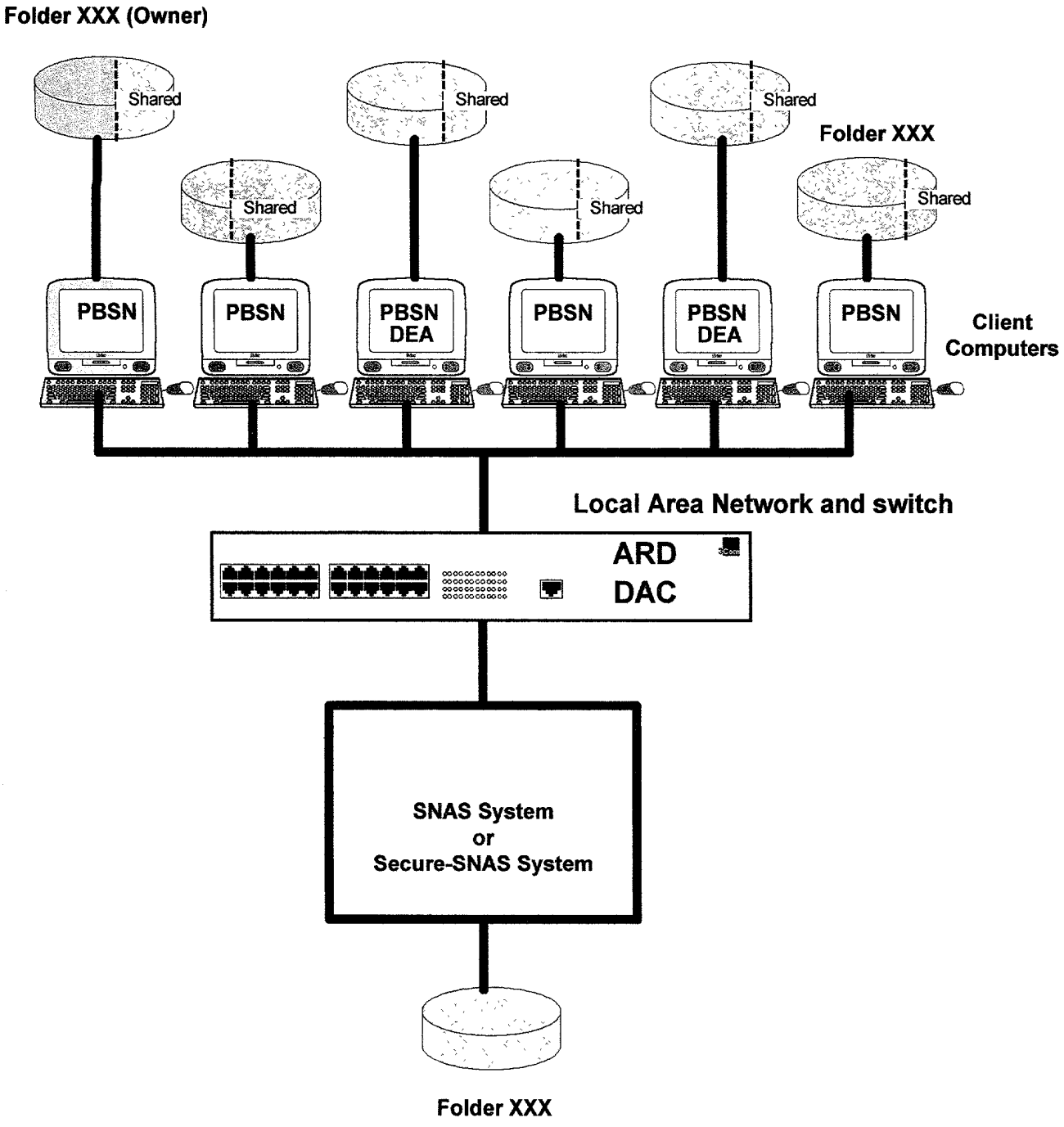


Figure 16: An Alternative Construction with DAC and ARD Functions in Network Switch